

CLAIMS

What is claimed is:

1. A method for creating a series of unique identifiers using a processor coupled
5 to volatile memory and to at least one block of non-volatile memory, the method comprising
the steps of:
 - storing a predetermined identifier in said non-volatile memory and in said
volatile memory;
 - setting a bit string in said non-volatile memory to a first logical value;
 - 10 setting a number subfield and a range subfield, together comprising an
extension field in said volatile memory, to a second logical value; and
 - generating a monotonic sequence of said unique identifiers by repetitively
performing the steps of:
 - incrementing said number subfield;
 - 15 creating said unique identifier by concatenating said predetermined
identifier and said extension field; and
 - when said number subfield contains all of the first logical value,
performing the steps of:
 - setting to the second logical value, a next sequential bit in the
20 bit string in said non-volatile memory;
 - incrementing said range subfield in said volatile memory; and
 - resetting said number subfield to the second logical value.
2. The method of claim 1, wherein, in the event that the contents of said volatile
25 memory are lost, establishing a new value for said unique identifier by performing the steps
of:
 - storing, in said range subfield in said extension field, the binary equivalent of
the number of sequential bits of the second logical value in the bit string in said non-volatile
memory; and
 - 30 setting said number subfield to all of the first logical value.
3. The method of claim 1, wherein said predetermined identifier is derived from
a World Wide Name.

4. A method for creating a series of unique identifiers using a processor coupled to volatile memory and to at least one block of non-volatile memory, the method comprising the steps of:

storing a predetermined identifier in said non-volatile memory and in said
5 volatile memory;
setting a bit string in said non-volatile memory to a value of all of a first
logical value;
setting a counter in said non-volatile memory to a value of a second logical
value;
10 setting a number subfield and a range subfield, together comprising an
extension field in said volatile memory, to the second logical value; and
generating a monotonic sequence of said unique identifiers by repetitively
performing the steps of:
incrementing said number subfield;
15 creating said unique identifier by concatenating said predetermined
identifier and said extension field; and
when said number subfield contains all of the first logical value,
performing the steps of:
incrementing said range subfield in said volatile memory; and
20 resetting said number subfield to the second logical value;
setting to second logical value, a next sequential bit in the bit
string in said non-volatile memory; and
when said bit string in said non-volatile memory contains all of
the second logical value, performing the steps of:
25 incrementing counter in said non-volatile memory; and
resetting said bit string to all of the first logical value.

5. The method of claim 4, wherein, in the event that the contents of said volatile memory are lost, establishing a value for said unique identifier by performing the steps of:

30 storing, in said range subfield in said extension field, a value equal to the
binary value of the counter times one plus the total number of bits in the bit string in said
non-volatile memory, plus the binary equivalent of the number of the second logical value
bits in the bit string in said non-volatile memory; and
setting said number subfield to all of the first logical value.

35

6. The method of claim 4, wherein said predetermined identifier is derived from a World Wide Name.

7. A system for generating a series of unique identifiers for use in a computer network, the system comprising:

volatile memory containing one of the unique identifiers comprising a predetermined identifier and a field including a number subfield and a range subfield;

non-volatile memory containing a copy of said predetermined identifier and bit string representing a value of said range subfield; and

a processor coupled to said volatile memory and said non-volatile memory; wherein said system generates a monotonic sequence of said unique identifiers by incrementing said number subfield.

8. The system of claim 7, wherein, when said number subfield contains all of a first logical value, a bit in the bit string in said non-volatile memory is set to a second logical value; said range subfield is incremented; and said number subfield is reset to the second logical value.

9. The system of claim 7, wherein, in the event that the contents of said volatile memory are lost, reestablishing a value for said one of the unique identifiers by:

storing, in said range subfield, a value equal to the binary equivalent of the number of second logical value bits in the bit string in said non-volatile memory and setting said number subfield to all of the first logical value.

10. The system of claim 7, wherein said predetermined identifier is derived from a World Wide Name.

11. A system for generating a series of unique identifiers for use in a computer network, the system comprising:

volatile memory containing one of the unique identifiers comprising a predetermined identifier and a field including a number subfield and a range subfield;

non-volatile memory containing a copy of said predetermined identifier and bit string representing a value of said range subfield; and

a processor coupled to said volatile memory and said non-volatile memory;

wherein said system generates a monotonic sequence of said unique identifiers by incrementing said number subfield;

wherein, when said number subfield contains all of a first logical value, a bit in the bit string in said non-volatile memory is set to a second logical value; said range subfield is incremented; and said number subfield is reset to the second logical value; and

wherein, a value for said one of the unique identifiers is determined by storing, in said range subfield, the binary equivalent of the number of the second logical value bits in the bit string in said non-volatile memory.

12. The system of claim 11, wherein said predetermined identifier is derived from a World Wide Name.

13. A system for generating a series of unique identifiers for use in a computer network, the system comprising:

volatile memory containing one of the unique identifiers comprising a predetermined identifier and a field including a number subfield and a range subfield;

non-volatile memory containing a counter, a copy of said predetermined identifier and bit string representing a value of said range subfield; and

a processor coupled to said volatile memory and said non-volatile memory;

wherein said system generates a monotonic sequence of said unique identifiers by incrementing said number subfield;

wherein, when said number subfield contains all of a first logical value, a bit in the bit string in said non-volatile memory is set to a second logical value; said range subfield is incremented; and said number subfield is reset to the second logical value; and

wherein, when said bit string in said non-volatile memory contains all of the second logical value, the counter in said non-volatile memory is incremented and the bit string in said non-volatile memory is set to all of the first logical value.

14. The system of claim 13, wherein a value for said one of the unique identifiers is determined by storing, in said range subfield, a value equal to the binary value of the counter times one plus the total number of bits in the bit string in said non-volatile memory, plus the binary equivalent of the number of the second logical value bits in the bit string in said non-volatile memory.

15. The system of claim 13, wherein said predetermined identifier is derived from a World Wide Name.

16. A method for creating a series of unique identifiers using a processor coupled to volatile memory and to at least one block of non-volatile memory, the method comprising the steps of:

storing a predetermined identifier and a field including a number subfield and a range subfield in said volatile memory;

storing a copy of the predetermined identifier and a bit string representing a value of the range subfield in said non-volatile memory; and

generating identifiers by stepping the value of the range subfield.

17. The method of claim 16, wherein the generating identifiers is by incrementing the value of the range subfield.

15

18. A system to create a series of unique identifiers comprising:

volatile memory to store a predetermined identifier and a field including a number subfield and a range subfield;

non-volatile memory to store a copy of the predetermined identifier and a bit string representing a value of the range subfield; and

a processor for generating identifiers by stepping the value of the range subfield.

19. The system of claim 18 wherein the generating identifiers is by incrementing the value of the range subfield.

20. A method for creating a series of unique identifiers using a processor coupled to faster memory and to at least one block of slower memory, the method comprising the steps of:

storing a predetermined identifier in said slower memory and in said faster memory;

setting a bit string in said slower memory to a first logical value;

setting a number subfield and a range subfield, together comprising an extension field in said faster memory, to a second logical value; and

generating a monotonic sequence of said unique identifiers by repetitively performing the steps of:

incrementing said number subfield;

creating said unique identifier by concatenating said predetermined
5 identifier and said extension field; and

when said number subfield contains all of the first logical value,
performing the steps of:

setting to the second logical value, a next sequential bit in the
bit string in said slower memory;

10 incrementing said range subfield in said faster memory; and
resetting said number subfield to the second logical value.

21. The method of claim 20, wherein, in the event that the contents of said faster
memory are lost, establishing a new value for said unique identifier by performing the steps
15 of:

storing, in said range subfield in said extension field, the binary equivalent of
the number of sequential bits of the second logical value in the bit string in said slower
memory; and

20 setting said number subfield to all of the first logical value.

22. The method of claim 20, wherein said predetermined identifier is derived from
a World Wide Name.

23. A method for creating a series of unique identifiers using a processor coupled
25 to faster memory and to at least one block of slower memory, the method comprising the
steps of:

storing a predetermined identifier in said slower memory and in said faster
memory;

30 setting a bit string in said slower memory to a value of all of a first logical
value;

setting a counter in said slower memory to a value of a second logical value;
setting a number subfield and a range subfield, together comprising an
extension field in said faster memory, to the second logical value; and

35 generating a monotonic sequence of said unique identifiers by repetitively
performing the steps of:

- incrementing said number subfield;
creating said unique identifier by concatenating said predetermined identifier and said extension field; and
when said number subfield contains all of the first logical value,
5 performing the steps of:
incrementing said range subfield in said faster memory; and
resetting said number subfield to the second logical value;
setting to second logical value, a next sequential bit in the bit string in said slower memory; and
10 when said bit string in said slower memory contains all of the second logical value, performing the steps of:
incrementing counter in said slower memory; and
resetting said bit string to all of the first logical value.
- 15 24. The method of claim 23, wherein, in the event that the contents of said faster memory are lost, establishing a value for said unique identifier by performing the steps of:
storing, in said range subfield in said extension field, a value equal to the binary value of the counter times one plus the total number of bits in the bit string in said slower memory, plus the binary equivalent of the number of the second logical value bits in
20 the bit string in said slower memory; and
setting said number subfield to all of the first logical value.
- 25 25. The method of claim 23, wherein said predetermined identifier is derived from a World Wide Name.
26. A system for generating a series of unique identifiers for use in a computer network, the system comprising:
faster memory containing one of the unique identifiers comprising a predetermined identifier and a field including a number subfield and a range subfield;
30 slower memory containing a copy of said predetermined identifier and bit string representing a value of said range subfield; and
a processor coupled to said faster memory and said slower memory;
wherein said system generates a monotonic sequence of said unique identifiers by incrementing said number subfield.

27. The system of claim 26, wherein, when said number subfield contains all of a first logical value, a bit in the bit string in said slower memory is set to a second logical value; said range subfield is incremented; and said number subfield is reset to the second logical value.

5

28. The system of claim 26, wherein, in the event that the contents of said faster memory are lost, reestablishing a value for said one of the unique identifiers by:

storing, in said range subfield, a value equal to the binary equivalent of the number of second logical value bits in the bit string in said slower memory and

10

setting said number subfield to all of the first logical value.

29. The system of claim 26, wherein said predetermined identifier is derived from a World Wide Name.

15

30. A system for generating a series of unique identifiers for use in a computer network, the system comprising:

faster memory containing one of the unique identifiers comprising a predetermined identifier and a field including a number subfield and a range subfield;

20

slower memory containing a copy of said predetermined identifier and bit string representing a value of said range subfield; and

a processor coupled to said faster memory and said slower memory;

wherein said system generates a monotonic sequence of said unique identifiers by incrementing said number subfield;

25

wherein, when said number subfield contains all of a first logical value, a bit in the bit string in said slower memory is set to a second logical value; said range subfield is incremented; and said number subfield is reset to the second logical value; and

wherein, a value for said one of the unique identifiers is determined by storing, in said range subfield, the binary equivalent of the number of the second logical value bits in the bit string in said slower memory.

30

31. The system of claim 30, wherein said predetermined identifier is derived from a World Wide Name.

35

32. A system for generating a series of unique identifiers for use in a computer network, the system comprising:

faster memory containing one of the unique identifiers comprising a predetermined identifier and a field including a number subfield and a range subfield;

slower memory containing a counter, a copy of said predetermined identifier and bit string representing a value of said range subfield; and

5 a processor coupled to said faster memory and said slower memory;

wherein said system generates a monotonic sequence of said unique identifiers by incrementing said number subfield;

wherein, when said number subfield contains all of a first logical value, a bit in the bit string in said slower memory is set to a second logical value; said range subfield is
10 incremented; and said number subfield is reset to the second logical value; and

wherein, when said bit string in said slower memory contains all of the second logical value, the counter in said slower memory is incremented and the bit string in said slower memory is set to all of the first logical value.

15 33. The system of claim 32, wherein a value for said one of the unique identifiers is determined by storing, in said range subfield, a value equal to the binary value of the counter times one plus the total number of bits in the bit string in said slower memory, plus the binary equivalent of the number of the second logical value bits in the bit string in said slower memory.

20

34. The system of claim 32, wherein said predetermined identifier is derived from a World Wide Name.

25 35. A method for creating a series of unique identifiers using a processor coupled to faster memory and to at least one block of slower memory, the method comprising the steps of:

storing a predetermined identifier and a field including a number subfield and a range subfield in said faster memory;

30 storing a copy of the predetermined identifier and a bit string representing a value of the range subfield in said slower memory; and

generating identifiers by stepping the value of the range subfield.

36. The method of claim 35, wherein the generating identifiers is by incrementing the value of the range subfield.

35

37. A system to create a series of unique identifiers comprising:
faster memory to store a predetermined identifier and a field including a
number subfield and a range subfield;
slower memory to store a copy of the predetermined identifier and a bit string
5 representing a value of the range subfield; and
a processor for generating identifiers by stepping the value of the range
subfield.
38. The system of claim 37 wherein the generating identifiers is by incrementing
10 the value of the range subfield.